IN THE CLAIMS

Please amend the claims as follows. A separate marked-up copy of the amended claims is presented herewith.

23. (three times amended) Device for measuring fluorescence excited by light, which has at least one layer which is applied to a support and which at least one layer contains a fluorescing material, having at least one light source which emits light of at least one wavelength that excites fluorescence(s) and thus fluorescent light in the at least one layer, and which exciting light is directed through the support onto the at least one layer by at least one first optical conductor, the fluorescent light being directed by at least one second optical conductor onto at least one detector for determining the intensity of the fluorescent light, wherein the end faces of all the optical conductors are arranged relative to one another as a function of their numerical apertures and as a function of the at least one layer containing a fluorescing material and which layer is applied to the support, and the optical conductors which are arranged as a bundle in the shape of a ring with at least one first optical conductor, arranged in the interior of the ring, which optical conductors of the bundle are used for exciting light or for fluorescent light, or a plurality of the optical conductors are arranged in series arrangements opposite one another, with one of the first optical conductors and a corresponding one of the second optical conductors forming pairs, such that it is possible to achieve a defined localized distribution of measurable fluorescence intensity, and the light source(s), the at least one first and at least one second conductors and the detector(s) are held in a measuring head.

26. (three times amended) Device according to claim 23, wherein at least one of a filter, a system of exchangeable filters or a launching optical system is arranged between the light source and at least one first optical conductor.

28. (three times amended) Device according to claim 23, wherein the at least one second optical conductor for conducting exciting light, reference light or further fluorescent light comprises a plurality of second optical conductors which are arranged in an alternating fashion in

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an outer ring, and a portion of the second optical conductors for conducting fluorescent light are arranged in an inner ring.

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31. (three times amended) Device according to claim 23, wherein the support, which is transparent to exciting light and fluorescent light has a surface which contains partially polished or reflecting surface regions or is surrounded by a medium of lower refractive index, and is mounted in an exchangeable fashion on the measuring head.

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35. (three times amended) Device according to claim 31, wherein, on an end face opposite an end face into which the exciting light can be launched, the support has an angular surface and a layer of the at least one layer which contains fluorescing material and at which the exciting and fluorescing light is reflected in the direction of a planar optical conductor constructed symmetrically relative to the support, and the light from the angular surface thereof is directed onto an end face arranged at the other end of an optical conductor, and from there at least fluorescent light is directed onto a detector via at least one of the optical conductors, the support and planar optical conductor being arranged at a spacing from one another or being optically separated into the region of the angular surface.

36. (three times amended) Device according to claim 31, wherein the support is of u-shaped construction comprising two limbs, the two limbs are optically separated from one another, and the exciting light can be launched into an end face of a limb via at least one additional optical conductor, and at least fluorescent light can be coupled out via the end face of the other limb into at least one further optical conductor, which at least one additional optical conductor and at least one further optical conductor are in addition to the at least one first and at least one second optical conductors.

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39. (three times amended) Device according to claim 23, wherein between one of the optical conductors and one of the at least one layers containing the fluorescing material, a transparent body made from optically scattering material is arranged or a body comprising a diffusely scattering surface is positioned facing the layer.